Project Report: MCQ Python App

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Introduction

This project is a quiz app for computer science students. It lets users take multiple-choice tests, tracks their scores, and saves their history. The app runs in the console, making it easy to use without a fancy interface. Admins can add new questions, and users can pick topics like Python
or Cybersecurity.

features and code structure :

- **User Management**: When you start the app, you type a username. If you're new, it creates a profile. Returning users see their past scores and test dates. All this is saved in a JSON file.
- **Questions & Answers**: Questions are stored in a JSON file, split into categories. Each
 question has three options, and the app checks if your answer is correct.
- **Taking the Quiz**: You pick a category (or choose "All"), answer questions one by one, and get immediate feedback. After finishing, your score is saved.
- **Admin Features**: Admins (like "riad" or "fouad") can add new questions to any category.
- **JSON Files**: Used for storing users and questions because it's simple and works well with Python.
- **Classes & Functions**: The main class MCQApplication handles everything : loading data, running quizzes, saving results. Functions are split into smaller tasks (e.g., loadUsers(), run_test()) to keep the code clean.
- **Input Validation**: The app forces you to type valid answers (a/b/c) and checks if usernames or categories exist.

Usage Guide:-

- **Starting Up**
  - run the main.py script through a terminal window

- the script will ask you for a user name
  - If you've used it before, it digs up your past scores and test dates from a JSON file
  - if not It will create a profile for you .
- **Taking the Quiz**
  - Pick a category (like "Python" or "Algorithms") or go with "All Categories."
  - The app grabs questions from the JSON file, shuffles them and present them for you.
  - Each question has three options (a, b, c). it won't accept other choices
- **Feedback & Scores**
  - After each question, it will tell you if your choice is correct or not. If you are wrong, it shows the correct answer.
  - At the end, it will show you your final score and update your info in CVS file

- **Admin**
  - Admins (like "riad" or "fouad") have the possibility to add new questions. They pick a category, type the question + options, and tag the right answer. The app add it into the JSON file.
- **Extras**
  - **Export Scores**: You can dump your entire quiz history into a CSV file.
  - **History Tracking**: Every test you take gets logged with the date, category, and score.
  - **Random Questions**: Uses random function to pick questions without repeats.

Testing :

- **Users**: Made multiple accounts to see if scores saved.
- **Invalid Inputs**: Typed wrong input as an answer. The app replied "wrong answer pick a/b/c!"
- **CSV Checks**: Opened exported files in Excel to make sure dates and scores lined up.

Conclusion:

The MCQ Python App showcases our team's application of advanced programming concepts to create a functional, user-friendly quiz platform. With features like user management, score tracking, admin controls, and question categorization, the app delivers a personalized and engaging experience. Robust testing ensured reliability, and

JSON-based data storage ensures simplicity and scalability. This project reflects our dedication to creating practical tools for learning and skill development.